NOAA Research in Michigan

MI-1 through 16 (Based in Ann Arbor and East Lansing - serves entire state)

National Sea Grant College Program
Michigan Sea Grant College Program

The Michigan Sea Grant College Program provides funding and extension for projects dealing with a variety of coastal issues in the Great Lakes. Michigan Sea Grant programs include research on the effects of fragmentation, caused by human development, on marsh fish communities, the impact of accelerated rates of sedimentation, commonly caused by erosion; the economic value of wetlands; water quality in the Lake St. Clair water system (the St. Clair River, Lake St. Clair, and the Detroit River) which provides drinking water to more than four million people and supports residential development, recreation and industry; remote sensing technology to estimate surface chlorophyll and sediment concentrations of two major episodic events in southern Lake Michigan and Lake Superior; and the introduction and spread of aquatic nuisance species in the Great Lakes can be considered a form of biological pollution. In FY 2001, the Michigan Sea Grant projects received funding of approximately $1.4 million from the National Sea Grant College Program. For more information please visit http://www.miseagrant.org

MI-1 through 16 (Statewide)

Climate and Global Change Program

NOAA is responsible for providing climate information to the Nation in order to prepare and protect climate sensitive sectors of society and the economy. To carry out this mission, NOAA's Climate and Global Change Program conducts focused scientific research to understand and predict variations of climate. The program is comprised of a number of research elements, each focusing on a specific aspect of climate variability. Taken together, this research contributes to improved predictions and assessments of the effects of climate variability and change on different environments over a continuum of time scales from season to season, year to year, and over the course of a decade and beyond. This research is accomplished through the strong support of the academic and private sectors, as well as NOAA and other federal laboratories. In FY 2001, NOAA's Climate and Global Change Program provided approximately $443,300 in support of climate research in the State of Michigan. For more information please visit http://www.ogp.noaa.gov

MI-1 and 2 (Alpena, Muskegon, and Saugatuck)

Great Lakes Environmental Research Laboratory
Real-Time Meteorological Observation Network

The Marine Instrumentation Laboratory at the Great Lakes Environmental Research Laboratory (GLERL) has deployed and is maintaining a real-time network of shore-based meteorological

instrument packages including locations on Lake Michigan, at Muskegon and Saugatuck and on Lake Huron at Alpena. The meteorological observations obtained from the network are being used in GLERL's Great Lakes Coastal Forecasting System to improve nowcasts and forecasts of wind, waves, water levels, and circulation. In addition, the National Weather Service has committed resources to support the network and forecast offices in Chicago, Milwaukee, and Grand Rapids are using the observations to improve marine forecasts and warnings. The Muskegon station measures/records wind speed, wind gust, wind direction, air temperature, dew point, relative humidity, atmospheric pressure, and light level at 5-minute increments with web updates of this information every 15 minutes. In addition, four live webcams update images every 5 minutes with 4-hour animations available from two of the webcams at the site. The Saugatuck station measures/records wind speed, wind gust, wind direction, and air temperature at 5-minute increments; updated hourly on the web. The Alpena station measures/records wind speed, wind gust, wind direction, and air temperature at 5-minute increments; updated every half-hour on the web. In addition, webcam features images of Lake Huron's Thunder Bay that are updated every half-hour. For more information please visit http://www.glerl.noaa.gov/metdata/

MI-1, 2, 5, 6, 10, 14, 15, and 16 (Lake Superior, Lake Huron, and Lake Michigan)

National Undersea Research Program
National Undersea Research Center for the Northeastern United States and Great Lakes

The National Undersea Research Center for the Northeastern United States and Great Lakes is located at the University of Connecticut, Avery Point in Groton, Connecticut. It is one of six regional centers supported by the National Undersea Research Program (NURP). The Center supports and conducts undersea research in the waters off the northeast coast of the United States and the Great Lakes. The center provides science and operational support (occupied submersibles, remotely operated vehicles and mixed gas diving technologies) and funding for reviewed projects within this region. The Center supports research on the physical, chemical, and biological factors controlling the cycling and fates of organic contaminants and heavy metals (trace metals) at the sediment/water interface and their ultimate impacts on biological productivity. Also receiving special attention are the habitat characteristics controlling the recruitment and population dynamics of recreational and commercial species of fish, including "pest" species. The FY 2001 funding for the Center totaled $1.36 million. For more information please visit http://www.nurc.uconn.edu

MI-1, 2, and 6 (Lake Michigan)

Great Lakes Environmental Research Laboratory
Lake Michigan Mass Balance Study

Scientists from NOAA's Great Lakes Environmental Research Laboratory are participating in an EPA study that seeks to identify the sources, pathways and fate of contaminants cycling through the Lake Michigan ecosystem. Four major chemicals are being studied; polychlorinated biphenyls (PCBs), atrazine (an agricultural herbicide), trans-nonachlor (a pesticide), and mercury. The Lake Michigan Mass Balance focuses on where these chemicals are entering the Lake and what happens to them as they move through the ecosystem. This study will identify relative pollutant loads from

rivers, air deposition, and sediment resuspension, and will allow prediction of the benefits associated with reducing such loads. For more information please visit http://www.glerl.noaa.gov

MI-1, 5, 7, and 15 (Cheboygan, Pickford, Upper Keweenaw, Saginaw Bay, Jackson, and Detroit)

Forecast Systems Laboratory
GPS Meteorological Observing Systems

NOAA's Forecast Systems Laboratory (FSL) operates a rapidly expanding network of GPS Meteorological (GPS-Met) Observing Systems to monitor the total quantity of precipitable water vapor in the atmosphere. Currently, there are 93 systems over the contiguous 48 states and Alaska, and plans are being made to extend these observations to Hawaii, Puerto Rico, the Caribbean Islands, and Central America. Water vapor is an important but under-observed component of the atmosphere that plays a major role in severe weather events and the global climate system. GPS-Met systems provide accurate water vapor measurements under all weather conditions, including thick cloud cover and precipitation, and do so at very low cost. The major reason why this system is so economical is that the network is being developed by FSL in cooperation with federal, state and local government agencies, universities, and the private sector. The GPS stations provide high-accuracy surveying and navigation services for National defense, automated agriculture, safe land and marine transportation, government infrastructure management, and 911 emergency response services. Fortuitously, these systems can also be used for meteorology with the addition of surface weather sensors. GPS-Met systems located in Michigan include sites operated the U.S. Coast Guard near Upper Keweenaw, Pickford, Cheboygan, Saginaw Bay, and Detroit. An additional site is operated by Michigan Department of Transportation (MDOT) near Jackson, with an 11 sites planned for 2002. For more information please visit http://www.gpsmet.noaa.gov

MI-2 and 6 (Southern Lake Michigan)

Great Lakes Environmental Research Laboratory
Episodic Events Great Lakes Experiment

The Episodic Events Great Lakes Experiment (EEGLE) Program is a five-year study of spring storm-induced erosion and transport of fine sediment material in Lake Michigan's southern basin. The storm episodes generate winds, waves and currents, and a heavy sediment load that can be identified and tracked by satellite imagery. Fine sediment particles often bind with contaminants and nutrients and their suspension and transport elsewhere in the Lake may have important implications for ecosystem structure and function. EEGLE is a collaborative project that includes NOAA scientists from the Great Lakes Environmental Research Laboratory and university scientists from both inside, and outside, the Great Lakes region. The program is supported by funding from NOAA and the National Science Foundation. For more information please visit http://www.glerl.noaa.gov/eegle/

MI-2 and 13 (Muskegon and Ann Arbor)

Great Lakes Environmental Research Laboratory

The Great Lakes Environmental Research Laboratory (GLERL) carries out research and provides scientific products, expertise, and services required for effective management and protection of Great Lakes and coastal ecosystems. As part of the mission of NOAA and the U.S. Department of Commerce, GLERL science provides for protection of life and property, economic well-being, and sustained ecosystem health. With a wide array of scientific disciplines on staff, and an ecosystem-level focus, GLERL contributes unique capabilities in support of intelligent and cost-effective Great Lakes and coastal resource management. GLERL operates the main laboratory facility in Ann Arbor and a Lake Michigan field station in Muskegon. GLERL is pursuing focused research in areas including aquatic contaminants and biogeochemistry; invasive species, ecosystem dynamics and long-term monitoring. In addition, a number of projects have a more basin-wide scope. These include: CoastWatch, Impacts of Climate Change, Water Resources Research, and Physical Processes including wind-driven waves, currents, seiches, storm surges, and sediment transport and deposition, and lake bathymetry. In a new and unique effort started in February 2001, GLERL now has a Great Lakes Sea Grant Extension Agent onsite to support and promote increased cooperation and communication among GLERL and the seven Great Lakes Sea Grant Programs in the region, including the Michigan Sea Grant program. By making GLERL scientific products, services, and expertise more widely available to the extensive Great Lakes Sea Grant Network, the agent can rely on the Network's vast outreach, communications, and education infrastructure to furnish constituents with a wider information base. For more information please visit http://www.glerl.noaa.gov

MI-13 (Ann Arbor)

Cooperative Institute for Limnology and Ecosystem Research

The Cooperative Institute for Limnology and Ecosystem Research (CILER) is one of eleven NOAA Joint Institutes (JI). The JIs are a formal collaborative research arrangement between NOAA and a university or non-profit research institution that facilitates and enhances scientific investigation within particular research themes. CILER is unique in that it is the only JI whose research focuses on the Great Lakes and therefore involves all universities throughout the Great Lakes basin. CILER was established in 1989 as a joint endeavor of the University of Michigan, Michigan State University, and NOAA and is charged with improving the effectiveness of NOAA-sponsored research on coastal and estuarine areas, with particular emphasis on Great Lakes environmental issues, by fostering collaboration between NOAA and other federal, international, state, or local agencies and the Great Lakes academic research community. CILER improves the effectiveness of graduate-level education and expands the scientific experiences available to graduate students by providing a central vehicle for their participation in joint research programs with the Great Lakes Environmental Research Laboratory. It also provides expanded training opportunities in environmental research for NOAA and academic community scientific and technical personnel. In addition to a director and administrator, CILER currently supports a research staff of 30 including research scientists, postdoctoral research fellows, research support staff, graduate students, undergraduate students, and high school student interns. NOAA funding for CILER in FY 2001 was approximately $1.0 million. For more information please visit http://www.ciler.org